

REMARKS

Applicants appreciate the Examiner's thorough examination of the present application as evidenced by the Office Action of July 7, 2006 (hereinafter "Office Action"). In response, Applicants have amended independent Claim 43 to incorporate recitations from dependent Claims 44 and 45 to highlight patentable distinctions between the independent Claim 43 and the cited reference. Claims 44 and 45 have been canceled without prejudice or disclaimer and Claims 46 and 48 have been amended to correct their dependencies due to the cancellation of Claims 46 and 48. Applicants are also filing a Terminal Disclaimer herewith to overcome the obvious-type double patenting rejection. Dependent Claim 50 has been rewritten in independent form as this claim is only rejected based on obvious-type double patenting. In light of the above amendments, Applicants respectfully submit that all pending claims are in condition for allowance. Favorable reconsideration of all pending claims is respectfully requested for at least the reasons discussed hereafter.

Double Patenting

Claims 43 and 46 - 50 stand rejected under the judicially created doctrine of nonstatutory double patenting in view of the claimed subject matter of U. S. Patent No. 6,750,092 to Won et al. (hereinafter "Won"). (Office Action, page 2). In response, Applicants submit herewith a terminal disclaimer under 37 C.F.R. §1.321 with respect to the Won patent. The filing of this Terminal Disclaimer shall not be construed as an admission that the claims are unpatentable under the judicially created doctrine of obviousness-type double patenting or are obvious under 35 USC §103. Accordingly, Applicants submit that the double patenting rejections with respect to Claims 43 and 46 - 50 are overcome.

Independent Claim 43 is Patentable

Independent Claims 43 – 45 and 48 stand rejected under 35 U.S.C. §102(e) as being anticipated by U. S. Patent No. 6,078,072 to Okudaira *et al.* ("hereinafter Okudaira"). (Office Action, page 5).

A claim is anticipated under 35 U.S.C. §102, if each claimed element is found

in a single prior art reference. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991); *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 138 (Fed. Cir. 1986). There must be no difference between the claimed invention and the reference disclosure, as viewed by an ordinary artisan.

Scripps Clinic & Research Foundation v. Genetech, Inc., 927 F.2d at 1576.

Independent Claim 43 has been amended to incorporate recitations from dependent Claims 44 and 45. Independent Claim 43 now recites, in part:

forming a lower electrode on a substrate;
forming a dielectric layer on the lower electrode; and
forming an upper electrode on the dielectric layer;
wherein at least one of the lower electrode and the upper electrode comprises a ruthenium film having a stratified oxygen concentration profile that substantially approximates a step function such that the oxygen concentration profile is relatively high from a surface of an underlayer to a predetermined thickness, the oxygen concentration profile rapidly decreases at the predetermined thickness, and the oxygen concentration profile is relatively low and substantially constant from the predetermined thickness toward a top surface of the ruthenium film. (Emphasis added).

As highlighted in Claim 43 above, the oxygen concentration profile is relatively high from a surface of an underlayer to a predetermined thickness at which point the oxygen concentration profile rapidly decreases and is relatively low and constant toward a top surface of the ruthenium film. In sharp contrast, Okudaira teaches that the oxygen concentration profile is relatively low (essentially zero) from a surface of an underlayer to a predetermined thickness because the formation of layer 1B of FIGS. 18 and 20 does not include any oxygen that is introduced therein, while the oxygen profile is relatively high from the predetermined thickness toward a top surface of the multilayer film because the formation of layer 1C of FIGS. 18 and 20 includes oxygen introduced therein. (Okudaira, col. 14, lines 24 – 44 and 48 – 60).

For at least the foregoing reasons, Applicants respectfully submit that independent Claim 43 is patentable over Okudaira and that dependent Claims 46 - 49 are patentable at least by virtue of their depending from an allowable claim.

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Independent Claim 50 is Patentable

Dependent Claim 50 has been written in independent form and is patentable as the double patenting rejection has been overcome by the concurrent filing of a terminal disclaimer as discussed above.

CONCLUSION

In light of the above amendments and remarks, Applicants respectfully submit that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

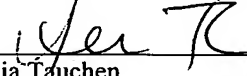
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